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David M. Fox

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Technology Transfer and the TRIPS Agreement *Are Developed Countries Meeting Their End of the Bargain?*

by DAVID M. FOX*

Abstract

International trade agreements often integrate provisions requiring the transfer of technology from developed to least-developed countries under the assumption that technological development in the world's poorest countries will help solve pressing global concerns. At first, supplying tangible hardware and equipment to least-developed countries satisfied these trade obligations. Today, however, modern development theory calls for a broader understanding of "technology" to include knowledge, skills, and human resource development. Article 66.2 of the TRIPS Agreement instructs developed country Members to incentivize domestic enterprises and institutions "for the purpose of promoting and encouraging technology transfer to least-developed country Members." Least-developed countries protest that developed-country Members do not fulfill their obligations under Article 66.2, and that WTO enforcement of this provision does not satisfy current economic development standards. This paper looks critically at Article 66.2 of the TRIPS Agreement and discusses whether developed countries are ensuring the successful flow of technology to resource-poor countries. Concluding that developed countries do not meet the Article 66.2 mandate, this paper outlines how the WTO may ensure the international community works to address the world's most demanding needs.

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INTRODUCTION

A country's economic modernization and long-term growth depends on its ability to develop and innovate technologically.¹ Unfortunately, the world's poorest countries often lack the infrastructure to absorb, implement, and create new technologies.² With economies dominated by agriculture and "petty service" activities,³ resource-poor countries have an absence of firms with the knowledge and financial capacities required to integrate modern-day technologies, and to innovate on these technologies thereafter.⁴ Consequently, the technological and economic gap between the world's least-developed and most-developed countries has increased dramatically since the mid-twentieth century.⁵ In light of this growing division, the international community recognizes the need to affirmatively facilitate the transfer of technology to developing and least-developed countries⁶ to accelerate their economic development and modernization.⁷ Starting in 1950, countries began integrating technology transfer within international instruments to address climate change, health emergencies,

1. See Ruth L. Okediji, *Reframing International Copyright Limitations and Exceptions as Development Policy*, in COPYRIGHT LAW IN AN AGE OF LIMITATIONS AND EXCEPTIONS 429, 430 (2017); Keith E. Maskus & Jerome H. Reichman, *The Globalization of Private Knowledge Goods and the Privatization of Global Public Goods*, 7 J. INT'L ECON. L. 279, 287 (2004).

2. See CARLOS CORREA, INTELLECTUAL PROPERTY IN LDCs: STRATEGIES FOR ENHANCING TECHNOLOGY TRANSFER AND DISSEMINATION 3 (2007), http://unctad.org/Sections/ldc_dir/docs/ldcr2007_Correa_en.pdf.

3. *Id.*

4. *Id.*

5. Michelle H. Balaklaw, *Helping Haiti: Incorporation NGO Technology Transfer into the TRIPS Agreement Framework to Aid Least Developed Countries in the Adoption of Clean Technologies*, 8 KY. J. EQUINE, AGRIC. & NAT. RESOURCES L. 137, 143 (2016); see also CORREA, *supra* note 2 (noting that between 1991 and 2004, only 20 U.S. patents were granted to applicants from least-developed countries, compared with 1.8 million granted to applicants from developed countries). Only 16% of the least-developed country population is estimated to have access to electricity compared to 99% in developed countries. UN-OHRLLS, THE LEAST DEVELOPED COUNTRIES, THINGS TO KNOW, THINGS TO DO 5 (2009), <http://www.unohrlls.org/UserFiles/File/LATEST%20IPoA.pdf>.

6. See Arno Hold & Bryan Christopher Mercurio, *After the Second Extension of the Transition Period for LDCs* 3 n.3 (NCCR Trade Reg., Working Paper No 2013/42, 2013) ("According to Article XI:2 of the WTO Agreement, the WTO recognizes those countries as least-developed which have been designated as such by the United Nations."). For the specific criteria used by the United Nations to classify "least-developed" countries, see *infra* Section I.B. There is no working definition for "developing" or "developed" countries. See Suerie Moon, *Meaningful Technology Transfer to LDCs: A Proposal for a Monitoring Mechanism for TRIPS Article 66.2*, at 3 (Int'l Ctr. for Trade and Sustainable Dev., Policy Brief Number 9, 2011), <https://www.ictsd.org/downloads/2011/05/technology-transfer-to-the-ldcs.pdf>.

7. See generally Margaret Chon, *Intellectual Property "from Below": Copyright and Capability for Education*, 40 UC DAVIS L. REV. 803, 820 (2007).

and other pressing global concerns.⁸ Today, over 80 international instruments, and even more bilateral treaties, mandate technology transfer.⁹

Technology transfer involves the diffusion and adoption of technology between parties.¹⁰ It can be direct or indirect, and always involves the transfer of technology from one institution (which developed the technology) to another (which adopts, adapts, and uses it).¹¹ International technology transfer primarily flows through private markets,¹² but may also take place through governments, nongovernmental organizations, and research bodies such as universities.¹³ While technology transfer typically occurs “formally” via foreign direct investment (FDI) or licensing agreements, it may also take place “informally” through processes such as copying or reverse engineering.¹⁴

The international community initially focused technology transfer programs exclusively on the acquisition of hardware and machinery, dispatching tangible items to least-developed countries.¹⁵ Consequently, technology transfer from developed to least-developed countries rarely included human resource development or domestic capacity building.¹⁶ More recently, however, international development scholarship helped broaden the international community’s understanding of technology transfer to include the diffusion of knowledge and intangible know-how to least-developed countries.¹⁷ Now, developed countries may transfer

8. See James Shepherd, *The Future of Technology Transfer Under Multilateral Environmental Agreements*, 37 ELR 10547, 10548 (2007), <http://elr.info/sites/default/files/articles/37.10547.pdf>; Keith E. Maskus & Ruth L. Okediji, *Intellectual Property Rights and International Technology Transfer to Address Climate Change* 1 (Int’l Ctr. for Trade and Sustainable Dev., Issue Paper No. 32, 2010), <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.471.6938&rep=rep1&type=pdf>.

9. Shepherd, *supra* note 8, at n.2.

10. Keith E. Maskus, *Encouraging International Technology Transfer* 9 (Int’l Ctr. for Trade and Sustainable Dev., Issue Paper No. 7, 2004), <https://www.ictsd.org/downloads/2008/07/b.pdf>; Shepherd, *supra* note 8, at 10548–49; but see Suerie Moon, *Does TRIPS Art. 66.2 Encourage Technology Transfer to LDCs?* 3 (Int’l Ctr. for Trade and Sustainable Dev., Policy Brief Number 2, 2008), https://www.ictsd.org/downloads/2008/12/policy_brief_2.pdf (“There is no standard definition of comprises technology transfer.”).

11. Maskus, *supra* note 10.

12. See Maskus & Okediji, *supra* note 8, at 6.

13. Shepherd, *supra* note 8.

14. CORREA, *supra* note 2, at 4 n.5.

15. *Id.*

16. *Id.*

17. See, e.g., Report of the Working Grp. on Trade and Transfer of Tech. to the Gen. Council, WTO Doc. WT/WGTTT/19 (Nov. 8, 2017) (“[T]he key component of any technology-transfer process was the effective transfer of the skills and intangible know-how, successful learning and the effective application of such knowledge in enhancing production capability. . . .”).

technology by sending textbooks to schools in least-developed countries,¹⁸ funding academic scholarships for students from least-developed countries,¹⁹ and training personnel at firms within least-developed countries.²⁰

The World Trade Organization's (WTO) Trade-Related Aspects of Intellectual Property Agreement (TRIPS)²¹ is an international agreement that incorporates technology transfer.²² Specifically, Article 66.2 of the TRIPS Agreement places a positive obligation on developed country Members "to provide incentives to enterprises and institutions for the purpose of promoting and encouraging technology transfer to least-developed country Members."²³ Least-developed countries view this provision as the primary justification for their participation in the global intellectual property system, and specifically, within the WTO.²⁴ These countries understand how technology transfer is integrally linked to their development priorities,²⁵ and thus see the Article 66.2 mandate as a necessary "part of the bargain" in which they agreed to join the WTO.²⁶ This paper looks closely at the text and implementation of Article 66.2, and evaluates whether developed countries meet their obligations under this provision. Part I provides an overview of the TRIPS Agreement and the bargains reached between developed and least-developed countries to form the WTO.²⁷ Part II focuses on Article 66.2, and provides a case study of four developed country Members to assess their implementation of the provision. Next, Part III outlines political and judicial solutions to ensure

18. See generally Chon, *supra* note 7.

19. See, e.g., CORREA, *supra* note 2, at 4 n.5 (discussing how "transfer of know-how" permits the transmission of technical knowledge from developed to least-developed countries).

20. *Id.*

21. Agreement on Trade-Related Aspects of Intellectual Property Rights, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, Apr. 15, 1994, 1869 U.N.T.S. 299, 33 I.L.M. 1197 (1994) [hereinafter TRIPS Agreement].

22. See, e.g., TRIPS Agreement, art. 7 ("The protection and enforcement of intellectual property rights should contribute to the promotion of . . . the transfer and dissemination of technology."); TRIPS Agreement art. 8.2 (promoting the "international transfer of technology"); TRIPS Agreement art. 66.2 (encouraging technology transfer to least-developed country Members).

23. For the full text and analysis of Article 66.2, see discussion *infra* Section II.

24. See Moon, *supra* note 10, at 2 (noting that least-developed countries "see technology transfer as part of the bargain in which they have agreed to protect intellectual property rights").

25. *Id.*

26. See Balaklaw, *supra* note 5, at 156; see also *Technology Transfer*, WORLD TRADE ORG., https://www.wto.org/english/tratop_e/trips_e/techtransfer_e.htm (last visited Apr. 4, 2018).

27. While there were compromises reached with "developing" countries as well, Article 66.2 focuses specifically on least-developed countries. This paper will focus exclusively on the relationship between developed and least-developed countries.

that developed countries, in partnership with least-developed countries, fully implement Article 66.2. This paper concludes with recommendations for increased coordination between developed and least-developed countries in order to ensure the successful transfer of technology as envisioned by the TRIPS Agreement.

I. THE TRIPS AGREEMENT IS A “BARGAINED-FOR” EXCHANGE BETWEEN DEVELOPED AND LEAST-DEVELOPED COUNTRIES

One hundred and twenty-eight nation-states initially formed the WTO.²⁸ Shaping the trade agreements within the WTO thus required consideration of the diverse interests of all Member countries.²⁹ With respect to the TRIPS Agreement, the WTO prescribed strict enforcement of intellectual property rights. The TRIPS Agreement harmonized intellectual property protections globally under the economic theory that stronger protections enable firms in least-developed countries to acquire increased investment opportunities and to license innovative technologies more easily.³⁰

A. History Behind the TRIPS Negotiations and Formation of the WTO

After World War II, the Allied Powers sought to form a world order characterized by liberal international trade.³¹ Led by the U.S., Canada, and England, 28 countries signed the General Agreement on Trade and Tariffs (GATT) in 1947. The Agreement formed an international trade organization with a General Council composed of all Member nations. GATT included a dispute resolution body that could enforce the Agreement’s provisions by imposing sanctions on Member nations that did

28. *The 128 Countries that Had Signed GATT by 1994*, WORLD TRADE ORG., https://www.wto.org/english/thewto_e/gattmem_e.htm (last visited Apr. 7, 2018).

29. See *infra* Section I.A for a general history of the compromises reached between developed and least-developed countries to form the WTO. See also *Overview of the WTO Agreements*, METI, <http://www.meti.go.jp/english/report/downloadfiles/2011WTO/2-0Overview.pdf> (last visited Apr. 26, 2018).

30. Maskus & Okediji, *supra* note 8, at 1 (“Intellectual property rights are justified by a number of key assumptions about market actors, most notably that clearly defined property rights facilitate optimal levels of investments in research and development, minimize transactions costs in licensing negotiations, encourage further innovation by disclosing new knowledge, and enhance downstream inventive activity build on existing patent data.”).

31. See CHAD P. BROWN, *SELF-ENFORCING TRADE* 10-22 (2010), https://www.brookings.edu/wp-content/uploads/2016/07/selfenforcingtrade_chapter.pdf.

not follow particular trade requirements.³² The Agreement also established negotiating rounds where Member nations could discuss relevant changes they wanted to propose within the larger trade association.³³

Before the WTO's formation, intellectual property rights were principally regulated at the international level by a number of treaties administered by the World Intellectual Property Organization (WIPO).³⁴ These treaties included the Paris Convention on Industrial Property³⁵ and the Berne Convention on Literary and Artistic Works.³⁶ Starting in the 1970s, developed countries expressed concern that the treaty system administered by WIPO failed to adequately protect their technology-based industries.³⁷ This concern ignited the Uruguay Round,³⁸ where developed countries brought about amendments to GATT with the aim of incorporating intellectual property rights into the larger international trade framework. From the perspective of developed countries, the TRIPS Agreement was thus a vehicle to fill a gap in the 1947 GATT legal system.³⁹

The negotiations to incorporate intellectual property protections within GATT pitted developed countries against least-developed countries.⁴⁰ Unlike developed countries, least-developed countries preferred to rely on the already-existent international agreements within WIPO.⁴¹ To strike a compromise, Chairman Lars Anell drafted a formal document (known as the "Chairman's report") reflecting the requests of both developed and

32. *Id.*

33. See generally DANIEL GERVAIS, *THE TRIPS AGREEMENT: DRAFTING HISTORY AND ANALYSIS* (1998).

34. UNCTAD & INT'L CTR. ON TRADE AND SUBSTANTIAL DEV., *RESOURCE BOOK ON TRIPS AND DEVELOPMENT* 3 (2005) [hereinafter UNCTAD-ICTSD].

35. Paris Convention for the Protection of Industrial Property, Mar. 20, 1883, 13 U.S.T. 2, 828 U.N.T.S. 107, as last revised at Stockholm, July 14, 1967, 21 U.S.T. 1538, 828 U.N.T.S. 305.

36. Berne Convention for the Protection of Literary and Artistic Works, Sept. 9, 1886, 168 Consol. T.S. 185, as last revised at Paris, July 24, 1971, 25 U.S.T. 1341, 828 U.N.T.S. 221.

37. Hold & Mercurio, *supra* note 6, at 4.

38. Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations, Agreement Establishing the World Trade Organization, GATT Doc. MTN/FA (Apr. 15, 1994), *reprinted in* 33 I.L.M. 1125, 1144-53 (1994).

39. UNCTAD-ICTSD, *supra* note 34, at 2-3.

40. GERVAIS, *supra* note 33, at 17; see generally Daniel J. Gervais, *Intellectual Property, Trade & Development*, 74 *FORDHAM L. REV.* 505, 507 (2005) [hereinafter *IP, Trade & Development*]; Amnon Lehavi, *Globalizing Property Law: An Institutional Analysis*, 50 *VAND. J. TRANSNAT'L L.* 1173, 1204-05 (2017).

41. GERVAIS, *supra* note 33, at 10 (Chile's statement at the Uruguay Round is illustrative: ("[I]t is Chile's intention that it should in no case be incorporated in the structure of the GATT, but rather that, if it is adopted, it shall be the subject of an agreement to be administered by WIPO or another organization other than GATT.")).

least-developed countries.⁴² The Report outlined strict protections of intellectual property rights under the GATT umbrella, and provided for the differential treatment of least-developed countries, including deferred implementation provisions and promises of technology transfer.⁴³ In addition, to further mitigate the resistance of least-developed countries, developed countries offered additional concessions in other GATT trade agreements, including increased access to textile and agricultural markets.⁴⁴ With the promise of differential treatment and other trade concessions, least-developed countries were ready to commit to enforcing the intellectual property rights originating in developed countries' technology-based industries. Accordingly, the signing of the TRIPS Agreement is widely considered part of a package deal that formalized the creation of the WTO.⁴⁵

B. The "Give and Take" Within the TRIPS Agreement

The TRIPS Agreement is microcosmic of the larger "bargained-for" exchange reached during the Uruguay Round.⁴⁶ The TRIPS Agreement's text and structure demonstrates the balance reached between developed and least-developed countries with respect to their technology-related interests.⁴⁷ Below is a discussion of three particular examples of compromises reached within the TRIPS Agreement.⁴⁸

42. *Id.*

43. *Id.* at 27.

44. See UNCTAD-ICTSD, *supra* note 34, at 4. Developed countries also threatened to impose trade sanctions and to withdraw completely from GATT. *Id.*

45. Gervais, *IP, Trade & Development*, *supra* note 40, at 507.

46. See J.H. Reichman & David Lange, *Bargaining Around the TRIPS Agreement: The Case for Ongoing Public-Private Initiatives to Facilitate Worldwide Intellectual Property Transactions*, 9 DUKE J. COMP. & INT'L L. 11, 17 (1998) ("[D]eveloping countries were offered greater access to markets for traditional manufactured goods and for their agricultural products in exchange for codified obligations to respect intellectual property rights.").

47. See generally GERVAIS, *supra* note 33 (discussing that while developed countries sought strict intellectual property protections, least-developed countries aimed to create an agreement that supported their pursuit for a viable technologically developed economy).

48. This Section does not examine Technology Transfer (TRIPS Agreement art. 66.2) or Technical Cooperation (TRIPS Agreement art. 67) but leaves discussion about these compromises to Section II. While Geographic Indications (GIs) are often considered to be a debate between the United States and the European Union, protecting GIs favors developing and least-developed countries. For example, GIs may be "hailed as the poor people's intellectual property rights, recognizing the knowledge of weavers, farmers, and craftspeople rather than just the high technology contribution of multi-national enterprises. Madhavi Sunder, *IP3*, 59 STAN. L. REV. 257, 301 (2006).

1. Preamble and Basic Principles

The TRIPS Agreement begins with a *preamble* acknowledging the need to “promote effective and adequate protection of intellectual property rights” and confirming that “intellectual property rights are private rights.”⁴⁹ While leading with this statement might indicate preference toward developed country Members,⁵⁰ the *preamble* follows by explicitly recognizing the “special needs” of least-developed country Members, demanding new rules around transitional arrangements.⁵¹ According to the *preamble*’s text, the purpose of catering toward the “special needs” of least-developed countries is to provide them “maximum flexibility in the domestic implementation of laws and regulations.”⁵² Accommodating least-developed country hardships thus ensures that they have the time and resources needed to “create a sound and viable technological base.”⁵³ Finally, the *preamble* recognizes the “public policy objectives” of the international community, including both the “development” objectives for least-developed country Members, and the “technological” objectives for the developed country Members.⁵⁴

In addition to the balance struck in the *preamble*, the Agreement’s “Basic Principles”⁵⁵ reconcile the competing interests incorporated in the TRIPS Agreement. For example, Article 7 establishes that intellectual property protection and enforcement serves dual purposes of (1) encouraging technological innovation and (2) the transfer and dissemination of technology.⁵⁶ By stating that these objectives ensure the “mutual advantage” of producers and users of technology,⁵⁷ Article 7 clearly contrasts the goals of technology-based industries in developed countries (promoting technological innovation) with the interests of firms in least-developed countries (the transfer and dissemination of

49. TRIPS Agreement, *supra* note 21, pmbl.

50. See Paul J. Heald, *Mowing the Playing Field Addressing Information Distortion and Asymmetry in the TRIPS Game*, 88 MINN. L. REV. 249, 249–50 (2003) (“For technologically advanced nations, usually net exporters of copyrighted materials and patented products, the reduction of piracy, counterfeiting, and other uncompensated uses has obvious pecuniary advantages. The rational response of the developing world is less obvious.”).

51. TRIPS Agreement, *supra* note 21, pmbl.

52. *Id.*

53. Heald, *supra* note 50, at 274.

54. TRIPS Agreement, *supra* note 21, pmbl.

55. *Id.*

56. *Id.* art. 7.

57. *Id.*

technology).⁵⁸ In addition, Article 7 affirms the Agreement's balance of "social welfare" concerns among those in resource-poor countries with the "economic welfare" considerations of technology-based industries in developed countries.⁵⁹ Article 8 furthers the goals outlined in Article 7, and expressly permits Members to formulate laws and regulations that "protect public health and nutrition."⁶⁰ Article 8 warns of potential intellectual property right holders who might hinder this objective by "adversely affect[ing] the international transfer of technology."⁶¹ Altogether, the *preamble* and Basic Principles of the TRIPS Agreement encapsulate the larger bargained-for exchange reached by developed and least-developed countries in forming the WTO.

2. Transitional Arrangements

When negotiating the TRIPS Agreement, many of the least-developed countries lacked domestic systems for protecting and enforcing intellectual property rights.⁶² Effective implementation of the Agreement was therefore not even a possibility immediately following its signing.⁶³ Moreover, while least-developed countries wanted access to economic markets in developed countries, compliance with the TRIPS Agreement would impose significant administrative and enforcement costs.⁶⁴ Recognizing this reality, least-developed countries actively negotiated for provisions allowing deferred implementation of the Agreement.⁶⁵

The deferred implementation provisions of Article 65 and Article 66.1 reflect the negotiating spirit of the 1986 Uruguay Round,⁶⁶ permitting developing and least-developed countries "flexibility"⁶⁷ not afforded

58. *Id.*

59. *Id.*

60. *Id.* art. 8.1.

61. *Id.*

62. *See* Hold & Mercurio, *supra* note 6 at 3.

63. *Id.*

64. Heald, *supra* note 50, at 250.

65. GERVAIS, *supra* note 33, at 255 ("Transitional measures, particularly the date of entry into force of the Agreement, were negotiated during many sessions and until close to the end of the Uruguay Round."); *see also* TRIPS Agreement, *supra* note 21, arts. 65, 66 (distinguishing developing countries from least-developed countries).

66. *See* TERRENCE P. STEWARD, THE GATT URUGUAY ROUND: A NEGOTIATING HISTORY (1986-1992), 2313 (Kluwer, Deventer, 1993) ("The [TRIPS Agreement] clearly meets or exceeds the initial negotiating mandate articulated in Uruguay in 1986 . . . [I]t provides different treatment for developing countries and provides some recognition of different sensitivities within intellectual property for developing countries through longer transition periods.").

67. *See* TRIPS Agreement, *supra* note 21, pmbl.; *see also* discussion *supra* Section I.B.1.

developed country Members. For developing countries, Article 65 allows for a four-year delay for the general Agreement, and five-year delay for certain patents.⁶⁸ Article 66.1 allows least-developed countries to defer implementation for ten-years, and specifically mentions the “special needs” afforded to least-developed countries within the general Agreement.⁶⁹ In addition, Article 66.1 echoes the Agreement’s *preamble*, mentioning least-developed countries’ “need for flexibility” as the primary reason for the ten-year deferral.⁷⁰ Finally, Article 66.1 contemplates the “economic, financial, and administrative constraints” of rapid implementation of the Agreement.⁷¹ In total, the transitional arrangements of Article 65 and Article 66.1 demonstrate the concessions provided to least-developed countries.

3. Enforcing Patents

“Patents are at the heart of some of the most contentious disagreements between developed and least-developed countries.”⁷² Specifically, least-developed countries sought to leave unprotected patents on certain medicines and pharmaceuticals.⁷³ Compulsory licensing of foreign patents was therefore an area of intense negotiations leading up to signing the TRIPS Agreement.⁷⁴ Before the WTO, many least-developed countries did not recognize patents in pharmaceutical drugs.⁷⁵ Developed countries thus viewed strict patent protections as a key component of the Uruguay Round negotiations. Specifically, countries with the majority share of the world’s pharmaceutical firms stood to gain economically with stronger patent rights.⁷⁶ For example, during negotiations, the U.S. Ambassador to the United Nations (U.N.) said:

68. See TRIPS Agreement, *supra* note 21, art. 65.2, 65.4.

69. *Id.* art. 66.1. This deferred implementation has been extended numerous times, further demonstrating the general understanding within the WTO of meeting the “special needs” of least-developed countries. *Id.*

70. *Id.*

71. *Id.*; Hold & Mercurio, *supra* note 6, at 7.

72. DANIEL C.K. CHOW & EDWARD LEE, INTERNATIONAL INTELLECTUAL PROPERTY 260 (2d ed. 2012).

73. See *id.*

74. Donald Harris, *TRIPS After Fifteen Years: Success or Failure, as Measured by Compulsory Licensing*, 18 J. INTELL. PROP. L. 367, 383 (2011).

75. See Sunder, *supra* note 48, at n.15.

76. These countries pushed the “Prospect Theory,” maintaining that property rights vested to inventions is justified on the grounds that it will facilitate the more efficient use of resources by centralizing control or management over the invention in one entity, which has an economic interest in ensuring that it is used, maintained, licensed, and improved in an efficient manner. See CHOW & LEE, *supra* note 72, at 259 (citing Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J. L. & ECON. 265 (1977)).

[I]f we get to a system where the protection of patents are abrogated in the name of development, then we certainly will kill the organization [WIPO]. I am all pro-development, but I'm also committed to protecting the rights that were legally granted to American companies and other companies for the work that they do.⁷⁷

The resulting TRIPS Agreement set forth a delicate balance between the interests of developed countries seeking to strictly enforce patents, and least-developed countries hoping to unlock access to life-saving medicines. Article 27 of the TRIPS Agreement provides for substantive minimum standards of patent protection, including the requirement that countries may not deny patents based on the field of technology.⁷⁸ This provision prohibits Member nations from categorically denying patents to pharmaceutical or biotechnology products and processes.⁷⁹ On the other hand, Article 31 provides for the authorization of compulsory licenses for “public non-commercial use” in circumstances of “extreme urgency.”⁸⁰ This provision balances the strict patent rights negotiated by developed countries and gives least-developed countries the ability to access life-saving medicines when needed.⁸¹

Despite the affirmative compromises made to least-developed countries throughout the TRIPS Agreement, the TRIPS Agreement scholars disagree about whether the Agreement actually supports the world's poorest countries.⁸² Free-market proponents of the TRIPS Agreement argue that strict intellectual property protections encourage economic growth, and that temporary monopolies promote the diffusion of knowledge throughout the

77. *Id.* at 260.

78. *Id.* at 256.

79. *Id.* at 256.

80. TRIPS Agreement, *supra* note 21, art. 31(b); *see also* Sunder, *supra* note 48, at 294 (“The Doha Declaration clarifies that TRIPS allows for each member state to grant compulsory licenses in the event of a national emergency or a public health crisis.”).

81. *See* James Love, *Access to Medicine and Compliance with the WTO TRIPS Accord: Models for State Practice in Developing Countries*, in *Global Intellectual Property Rights: Knowledge, Access, and Development* 74–89 (2002). For an overview and example of compulsory licensing through the TRIPS Agreement, *see* James Love, *Access to Medicine and Compliance with the Compulsory Licensing*, KNOWLEDGE ECOLOGY INT'L, <https://www.keionline.org/cl> (last visited Apr. 21, 2018).

82. *See, e.g.*, Chon, *supra* note 7, at 805 (calling the TRIPS Agreement a “top down” approach to international development).

developing world.⁸³ On the opposite end of the spectrum, some scholars find the TRIPS Agreement overly burdensome on least-developed countries. They maintain that the TRIPS Agreement forces resource-poor countries to focus entirely on compliance, and not on absorbing and adopting certain technologies.⁸⁴ Arguing that because developed countries were the *demandeurs* at the Uruguay Round,⁸⁵ the TRIPS Agreement primarily creates wealth for industrialized countries.⁸⁶

II. DEVELOPED COUNTRIES ARE NOT MEETING THE ARTICLE 66.2 MANDATE

According to Article 66.2 of the TRIPS Agreement:

Developed country Members shall provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least-developed country Members in order to enable them to create a sound and viable technological base.

Technology transfer to least-developed countries provides firms in those countries contact to once inaccessible technologies.⁸⁷ In order to help least-developed countries create a “sound and viable technological base,” the TRIPS Agreement thus imposes an affirmative duty on developed countries to incentivize the international transfer of technology to these countries.⁸⁸

83. Margaret Chon, Denis Borges, & Barbosa Andrés Moncayo von Hase, *Slouching Towards Development in International Intellectual Property*, 2007 MICH. ST. L. REV. 71, 77 (2007). Scholars point to studies that confirm how foreign investment in least-developed countries increases when intellectual property protections are strong. See Gervais, *IP, Trade & Development*, *supra* note 40, at 519; Ben Willis, *The Arguments for and Against the TRIPS Agreement*, E-INTERNATIONAL RELATIONS STUDENT (Dec. 23, 2013), <http://www.e-ir.info/2013/12/23/the-arguments-for-and-against-the-trips-agreement/>.

84. Chon, *supra* note 7; CORREA, *supra* note 2, at 10 (“[T]here is no evidence suggesting that increased IPRs protection in developing countries will lead to more opportunities for acceding to up-to-date technologies, or that the global rate of innovation will increase.”).

85. Hold & Mercurio, *supra* note 6, at 3–4.

86. *Id.*; Willis, *supra* note 83.

87. See Balaklaw, *supra* note 5, at 157.

88. Moon, *supra* note 10, at 2; CORREA, *supra* note 2, at 18 (arguing that Article 66.2 puts an “obligation” on developed country Members).

A. Defining Methods of Technology Transfer to Least-Developed Countries

Since 1964, the U.N. has classified “least-developed countries” as the world’s poorest and weakest countries suffering from structural impediments to economic development.⁸⁹ The U.N. states that least-developed countries “require special support from the international community.”⁹⁰ Since the U.N. began releasing a list of least-developed countries in 1971,⁹¹ the number of countries classified as “least-developed” has more than doubled, and now includes 48 total countries.⁹² Under the WTO, a country is considered “least-developed” when classified as such by the U.N.⁹³ Currently, 34 of the 48 least-developed countries are Members of the WTO and party to the TRIPS Agreement.⁹⁴

<u>1971</u> Afghanistan, Benin, Bhutan, Botswana, Burkina Faso, Burundi, Chad, Ethiopia, Guinea, Haiti, Lao, People’s Democratic Republic, Lesotho, Malawi, Maldives, Mali, Nepal, Niger, Rwanda, Samoa, Somalia, Sudan, Uganda, United Republic of Tanzania, Yemen	<u>Graduates</u> Botswana (1994) Cabo Verde (2007) Maldives (2011) Samoa (2014) Equatorial Guinea (2017)
<u>1975-1985</u> Bangladesh, Central African Republic, Gambia, Cabo Verde, Comoros, Guinea-Bissau, Djibouti, Equatorial Guinea, Sao Tome and Principe, Sierra Leone, Togo, Vanuatu	
<u>1986-1995</u> Kiribati, Mauritania, Tuvalu, Myanmar, Mozambique, Liberia, Cambodia, Democratic Republic of the Congo, Madagascar, Solomon Islands, Zambia, Angola, Eritrea	
<u>1995-2018</u> Senegal, Timor-Leste, South Sudan	

Figure 1: Membership Changes to List of Least-Developed Countries

89. See *Timeline of LDC Criteria Changes*, UNITED NATIONS, <https://www.un.org/development/desa/dpad/least-developed-country-category/creation-of-the-ldc-category-and-timeline-of-changes-to-ldc-membership-and-criteria.html> (last visited Apr. 7, 2018).

90. UN-OHRLS, *supra* note 5.

91. Since 1971, the United Nations has recognized least-developed countries as the “poorest and weakest segment” of the international community, that is highly disadvantaged in their development process as a result of their vulnerability. *Id.*; see also *Creation of the LDC Category*, UNITED NATIONS, <https://www.un.org/development/desa/dpad/least-developed-country-category/creation-of-the-ldc-category-and-timeline-of-changes-to-ldc-membership-and-criteria.html> (last visited Feb. 18, 2018).

92. Only five countries have “graduated” from this list. Balaklaw, *supra* note 5, at 143–44.

93. See Hold & Mercurio, *supra* note 6.

94. Balaklaw, *supra* note 5, at 150–51.

To accurately classify countries as “least developed,” the U.N. first used tangible metrics like gross domestic product (GDP) and adult literacy as criteria.⁹⁵ The U.N. has since expanded its statistical measures for classifying least-developed countries.⁹⁶ Today, the U.N. identifies least-developed according to both human and economic statistical measures, under what is known as the “Human Asset Index” and “Economic Vulnerability Index.”⁹⁷

Human Asset Index	Economic Vulnerability Index
<ul style="list-style-type: none"> • Under-five mortality rate • Percentage of population undernourished • Maternal mortality ratio • Gross secondary school enrolment ratio • Adult literacy rate 	<ul style="list-style-type: none"> • Population size • Remoteness • Merchandise export concentration • Share of agriculture, forestry and fishing in GDP • Instability of exports of goods and services • Victims of natural disasters • Instability of agricultural production

Figure 2: Current Criteria for Classifying a Country as Least-Developed

Substantial barriers prevent least-developed countries from absorbing, adapting, and using new technologies. Insufficient resident know-how, lack of capital for domestic firms, and a foreign firm’s aversion to investing in unstable markets are just some of the hurdles slowing technology transfer to least-developed countries.⁹⁸ Ninety-two percent of rural households in least-developed countries in Africa have no electricity,⁹⁹ only 22% of the roads in least-developed countries are paved,¹⁰⁰ and 78% of the

95. See *Timeline*, *supra* note 89. In 2017, the U.N. defined least-developed countries as “low-income countries suffering from the most severe structural impediments to sustainable development.” *The Least Developed Countries: Historical Background*, UNITED NATIONS, <http://www.un.org/events/ldc3/prepcom/history.html> (last visited Apr. 2, 2018).

96. *The Least Developed Countries*, *supra* note 95.

97. *Id.*; see also *Criteria for Identification and Graduation of LDCs*, UN-OHRLLS, <http://unohrlls.org/about-ldcs/criteria-for-ldcs/> (last visited Apr. 21, 2018).

98. Cameron Hutchison, *Does TRIPS Facilitate or Impede Climate Change Technology Transfer into Developing Countries?*, 3 U. OTTAWA L. & TECH. J. 517, 520 (2006) (noting a business’ considerations before transferring technology to another business in a least-developed country).

99. UN-OHRLLS, *supra* note 5, at 10.

100. This number is particularly low compared to the 88% of roads paved in developed countries. *Id.* at 6.

urban population in least-developed countries live in “slums” or “informal settlements.”¹⁰¹ Furthermore, people living in least-developed countries face daily health concerns, often lacking access to clean water and proper sanitation.¹⁰² Consequently, the global community faces an uphill battle when attempting to meet the Article 66.2 mandate.

Technology transfer includes both “hard” technologies (such as equipment) and “soft” technologies (such as know-how).¹⁰³ Immediately following passage of the TRIPS Agreement, the WTO Secretariat released a Note outlining four methods for facilitating the transfer of technology to least-developed countries. They included:

1. FDI: technology can be transferred through FDI, which might take the form of a wholly owned subsidiary or a joint venture with host country investors. More than likely, this transaction involves only the supplier of technology.¹⁰⁴
2. Stipulated Transfer: technology may transfer through different contractual arrangements such as licensing, management contracts, or subcontracting. In a stipulated transfer, the transaction involves both the supplier and user of technology, with specific commercial conditions regarding the use of that technology.¹⁰⁵
3. Copying: a firm can acquire certain technologies by copying them through a process of reverse engineering. Here, there is no transaction between parties in developed or least-developed countries, but rather only those in the host country use the technology.¹⁰⁶
4. Free-Transfer: technology may transfer through a transaction involving both the supplier and user of technology, but without any commercial conditions stipulated. For instance, a least-developed country may impose a compulsory license via Article 31 of the

101. *Id.* at 20.

102. *Id.*

103. Hutchison, *supra* note 98, at 520; Alexander Adam, *Technology Transfer to Combat Climate Change: Opportunities and Obligations Under TRIPS and Kyoto*, 9 J. HIGH TECH. L. 1, 10 (2009).

104. Comm. on Trade and Env't, *Note by the Secretariat: Factors Affecting Transfer of Environmentally-Sound Technology*, WTO Doc. WT/CTE/W/22 (Feb. 21, 1996).

105. *Id.*

106. *Id.*

TRIPS Agreement, or a developed-country may voluntarily convey the technology.¹⁰⁷

While these four mediums for technology transfer might exist in theory, actualizing technology transfer to “enable [least-developed countries] to create a sound and viable technological base” faces practical market challenges.¹⁰⁸ For example, FDI primarily depends on the host country’s economic stability and labor capacity.¹⁰⁹ Understandably, a foreign firm contemplating an investment in a least-developed country will be concerned with its long-term economic prospects in that country. This firm must therefore consider the likelihood of efficiently integrating its product within the host country’s economic market.¹¹⁰ Similarly, the economic success of licensing a technology depends on the manufacturing experience of the licensee, and operational size of the licensing firm.¹¹¹ Consequently, because those living in least-developed countries face daily burdens and impoverished physical infrastructure, FDI in least-developed countries, or stipulated transfers of technology to firms in least-developed countries, seems unlikely without additional intervention. Furthermore, in order to copy or reverse engineer a technology, firms in least-developed countries must be able to efficiently install and utilize that technology.¹¹² Finally, facilitating a “free-transfer” of technology between a developed and least-developed country requires effective communication between firms in their respective countries, which also faces substantial hurdles.¹¹³ For example, a three-minute phone call from the EU to the U.S. currently costs 50 cents; a similar call from sub-Saharan Africa to the U.S. costs \$3.00.¹¹⁴

Since the Secretariat’s Note in 1996, development theory has incorporated the transfer of “knowledge” to meet the obligations of technology transfer. This type of transfer occurs through the migration of students and scientists and may occur by providing scholarships for students to attend universities in developed countries or sending tangible

107. *Id.*

108. See World Trade Organization, Ministerial Declaration of 10 December 2017, WTO Doc. WT/MIN(17)/40 (2017) (expressing concern that LDCs remain vulnerable due to “supply side constraints” and “structural difficulties in the global economy”).

109. Note by the Secretariat, *supra* note 104, at 3.

110. *Id.*

111. *Id.*

112. *Id.*

113. *Id.*

114. UN-OHRLLS, *supra* note 5, at 6.

products such as textbooks to schools within least-developed countries.¹¹⁵ Despite this newly recognized medium for transferring technology, students and scientists integrating technology in least-developed countries still face the same debilitating economic and physical challenges to create a “sound and viable technological base.”¹¹⁶ and are thus subject to the same hurdles when attempting to fulfill the Article 66.2 mandate.

B. Background on Article 66.2 Compliance

The framers of the TRIPS Agreement recognized the daunting challenges facing technology transfer to least-developed countries and thus specifically mandated developed countries to “provide incentives” to domestic firms.¹¹⁷ Without significant incentives, firms in developed countries would most likely spend their resources in more resource-rich countries where opportunities for profit are greater. Taking all of this into consideration, Article 66.2 permits developed country Members to provide incentives to “enterprises” and “institutions.”¹¹⁸ Accordingly, developed country Members may incentivize both private sector firms along with not-for-profit and public sector institutions to facilitate the required transfer of technology under Article 66.2.¹¹⁹

Despite the expansive language in Article 66.2, least-developed country Members have repeatedly criticized developed country Members and the WTO for failing to implement the provision’s mandate.¹²⁰ From 1995-1998, developed countries did not submit formal reports on their implementation of Article 66.2.¹²¹ In turn, Haiti protested at the 1998 TRIPS Council meeting that no action had been taken under Article 66.2.¹²² Speaking on behalf of least-developed country Members, Haiti requested increased reporting requirements for developed country Members regarding their implementation of this provision.¹²³ Three years later, at the Doha

115. See Okediji, *supra* note 8.

116. This is the purpose for the positive obligations placed on developed countries under Article 66.2. See TRIPS Agreement, *supra* note 21, art. 66.2.

117. See Moon, *supra* note 10, at 5 (“Presumably, one reason for this preferential status was that LDCs would be less likely to receive technology transfer through regular market channels if they competed directly with middle-income countries.”).

118. See TRIPS Agreement, *supra* note 21, art. 66.2.

119. See Moon, *supra* note 6, at 2.

120. See, e.g., Hutchison, *supra* note 98, at n.29 (“LDCs have repeatedly complained that little or no action has been taken under [Article 66.2].”).

121. See Moon, *supra* note 10 at 3 (describing how developed countries did not begin submitting formal reports until after the 1998 TRIPS Council meeting).

122. *Id.*

123. *Id.*

Ministerial Conference,¹²⁴ least-developed countries once again expressed concern that developed countries ignored their duty to comply with Article 66.2.¹²⁵ In response, WTO Members formally affirmed the trade organization's commitment to this provision. The 2001 Doha Decision in Implementation-Related Issues and Concerns articulated as follows:

Reaffirming that the provisions of Article 66.2 of the TRIPS Agreement are mandatory, it is agreed that the TRIPS Council shall put in place a mechanism for ensuring the monitoring and full implementation of the obligations in question. To this end, developed-country members shall submit prior to the end of 2002 detailed reports on the functioning in practice of the incentives provided to their enterprises for the transfer of technology in pursuance of their commitments under Article 66.2. These submissions shall be subject to a review in the TRIPS Council and information shall be updated by Members annually.¹²⁶

In 2003, the TRIPS Council—the body responsible for administering the TRIPS Agreement—codified an Article 66.2 reporting system.¹²⁷ The TRIPS Council stipulated that developed countries “shall submit” detailed reports every three years, and annual reports updating their larger reports.¹²⁸ The TRIPS Council outlined the specific information that each report must include:¹²⁹

124. The Doha Round was officially launched in November 2001 at the WTO's Fourth Ministerial Conference in Doha, Qatar. Like the Uruguay Round, the Doha Round comprised of trade negotiations among WTO Members. *The Doha Round*, WTO.ORG, https://www.wto.org/english/tratop_e/dda_e/dda_e.html (last visited Apr. 23, 2018).

125. The Ministerial Conference is the “topmost decision-making body of the WTO” and meets every two years. It brings together all members of the WTO to discuss relevant issues facing the organization's trade agreements. *See Ministerial Conferences*, WTO.ORG, https://www.wto.org/english/thewto66_e/minist_e/minist_e.html (last visited Apr. 21, 2018).

126. *See Moon, supra* note 6, at 2 (citing WTO, 2001b, para. 11.2).

127. Council for Trade-Related Aspects of Intellectual Property Rights, *Implementation of Article 66.2 of the TRIPS Agreement*, WTO Doc. IP/C/28 (Feb. 20, 2003), [https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009-DP.aspx?language=E&CatalogueIdList=11737&CurrentCatalogueIdIndex=0&FullTextSearch=\[hereinafter Implementation of Article 66.2\]](https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009-DP.aspx?language=E&CatalogueIdList=11737&CurrentCatalogueIdIndex=0&FullTextSearch=[hereinafter Implementation of Article 66.2]). The TRIPS Council monitors the operations of the Agreement and serves as a forum for discussion between members on key issues. *Council for TRIPS*, WTO.ORG, https://www.wto.org/english/tratop_e/trips_e/intel6_e.html (last visited Apr. 21, 2018).

128. Implementation of Article 66.2, *supra* note 127, para. 1 (“[Developed Members] shall provide new detailed reports every third year, and in the intervening years, provide updates to their most recent reports.”); *see also* Balaklaw, *supra* note 5, at 156–57.

129. The declaration uses the phrasing “shall provide,” indicating the positive obligation to meet these reporting requirements. Implementation of Article 66.2, *supra* note 127, para. 1.

- (1) An overview of the incentives regime put in place to fulfill the country's obligations;
- (2) Identification of the government agency or entity making the incentive available;
- (3) Eligible enterprises and institutions in the territory of the Member providing the incentives; and
- (4) Any additional information on the implementation of these incentives, such as:
 - a. Statistical or other information on the use of the incentives by the eligible enterprises and institutions;
 - b. The type of technology that has been transferred by these enterprises and institutions, and the terms on which it has been transferred;
 - c. The mode of technology transfer;
 - d. The least-developed countries to which these enterprises and institutions have transferred technology; and
 - e. Any additional information that would help the TRIPS Council assess the effects of the measures in promoting and encouraging technology transfer to least-developed country Members.¹³⁰

In 2011, communicating on behalf of the least-developed country Members, Angola submitted a Declaration outlining a proposed format for the Article 66.2 reporting.¹³¹ Despite the reporting system outlined by the TRIPS Council and the proposed format outlined by Angola, the transfer of technology from developed countries to resource-poor nations has been considered “lackluster” by both least-developed country Members and WTO officials.¹³²

Still, the Doha Conference and subsequent TRIPS Council reporting system jumpstarted increased reporting by developed country Members.¹³³ According to international development scholar Suerie Moon, less than ten countries reported annually on their implementation of Article 66.2 from 1999 to 2003. From 2004 to 2009, over 17 countries reported annually.¹³⁴ However, while submitting annual reports might indicate a country's attentiveness to satisfying Article 66.2 compliance, the mere act of

130. *Id.* para. 1-3.

131. Council for Trade-Related Aspects of Intellectual Property Rights, *Proposed Format for Reports Submitted by the Developed Country Members Under Article 66.2*, WTO Doc. IP/C/W/561. To see the Proposed Format, see *infra* Appendix A.

132. See generally Report of the Working Group on Trade *supra* note 17.

133. See Moon, *supra* note 6, at 3.

134. *Id.*

submitting a report does not accurately reflect the nature of a country's policies to incentivize technology transfer to least-developed countries.¹³⁵ In fact, notwithstanding the increase in submitted annual reports, many of the programs reported by developed countries did not target least-developed countries.¹³⁶ For instance, Moon's 2011 study showed that of the 384 programs submitted by developed countries between 1999-2007, only 34% were targeted specifically toward least-developed country Members, and 18% of the reported programs targeted least-developed countries that are non-WTO Members.¹³⁷ The remainder of the technology transfer programs targeted non-least-developed countries, or were aimed at transferring technology to geographic regions, and not to specific countries.¹³⁸

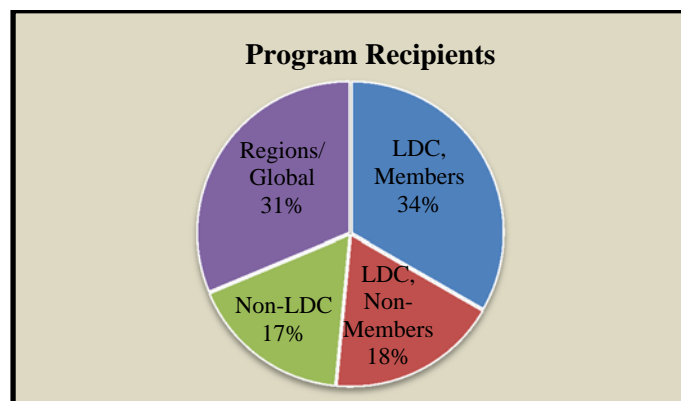


Figure 3: Article 66.2 Program Recipients from 1999-2010 (LDC = least-developed country)

The text of the TRIPS Agreement confirms that those drafting the Agreement explicitly provided for certain provisions to target different classes of countries. For example, Article 65 discusses the rules and regulations around deferred implementation for “developing” countries only.¹³⁹ Immediately following Article 65, Article 66.1 discusses deferred implementation for “least-developed” countries.¹⁴⁰ Article 67 commands

135. *Id.*

136. *See id.* at 4.

137. *Id.*

138. *Id.*

139. *See* TRIPS Agreement, *supra* note 21, art. 65.2, 65.4 (referring specifically to developing country members).

140. *Id.* art. 66.1; *see also supra* Section I.B.

developed countries to provide technical assistance to “developing” and “least-developed” countries.¹⁴¹ Article 66.2 specifically mandates the transfer of technology to only least-developed countries and is silent with respect to obligating the transfer of technology to “developing countries.”¹⁴² Thus, Moon’s study suggests that between 1999-2010, developed country Members generally failed to meet their Article 66.2 obligations to target incentives for programs that transferred technology to *exclusively* least-developed countries.

C. Case Study: Developed Countries Implementing Article 66.2

Despite the term “developed country” being used to create the legal obligation under Article 66.2, the WTO has no clear definition of “developed.”¹⁴³ One possible classification for “developed” countries is by membership in the Organization for Economic Cooperation and Development (OECD).¹⁴⁴ Established in 1960, the OECD is made up of 35 Member countries.¹⁴⁵ The OECD is a community of nations committed to “the values of democracy based on the rule of law and human rights, and adherence to open and transparent market-economy principles.”¹⁴⁶ The organization articulates that its Members have key economic and public governance indicators in common, such as (1) a rules-based open market economy, (2) tax transparency and international cooperation, (3) a stable and transparent financial system, and (4) a strong regional or global role in the world economy.¹⁴⁷ According to Moon’s 2011 study, 70% of OECD countries submitted Article 66.2 implementation reports between 1999-2010.¹⁴⁸ This paper looks closely at the Article 66.2 implementation

141. TRIPS Agreement, *supra* note 21, art. 67 (“In order to facilitate the implementation of this Agreement, developed country Members shall provide . . . technical and financial cooperation in [favor] of developing and least-developed country Members.”) (emphasis added).

142. *Id.* art. 66.2. Article 66 is titled “Least-Developed Country Members.”

143. *See* Moon, *supra* note 6, at 2.

144. *See id.*

145. *Members and Partners*, OECD.ORG, <http://www.oecd.org/about/membersandpartners/> (last visited Apr. 10, 2018).

146. Meeting of the OECD Council at the Ministerial Level, *Report of the Chair of the Working Group on the Future Size and Membership of the Organisation to Council, Framework for the Consideration of Prospective Members*, OECD.ORG (June 7, 2018) (“The codification of membership criteria—a comprehensive framework”) at 4, <http://www.oecd.org/mcm/documents/C-MIN-2017-13-EN.pdf>.

147. *Framework for the Consideration of Prospective Members: Report of the Chair of the Working Group on the Future Size and Membership of the Organization to Council*, OECD.org (June 7, 2017), <http://www.oecd.org/mcm/documents/C-MIN-2017-13-EN.pdf>.

148. Moon, *supra* note 6, at 3.

reports of four OECD countries: Australia, Canada, Japan, and the U.S.¹⁴⁹ The following is a breakdown of each of these country's 2017 reports.¹⁵⁰

In General

To begin, each country affirmatively acknowledges its obligation to submit its implementation report “pursuant to” or “in accordance with” paragraph 1 of the reporting system outlined by the TRIPS Council.¹⁵¹ Next, both Canada and the U.S. articulate that their reports are an “illustrative,” and not exhaustive, list of all incentives provided to their territory's enterprises and institutions.¹⁵² In comparison, Australia states that its 2017 report is “a full report in respect of Article 66.2.”¹⁵³ Japan is silent with respect to whether its report is illustrative or exhaustive.¹⁵⁴ Finally, both Australia and Canada indicate that their reports conform to the proposed format as suggested by Angola and least-developed country Members in 2011.¹⁵⁵ Altogether, this paper identified and analyzed 19-total programs in Australia's report, 20-total programs in Canada's report, 58-total programs in Japan's report, and 134-total programs in the U.S. report.¹⁵⁶

149. *List of OECD Member Countries*, OECD.ORG, <http://www.oecd.org/about/members-andpartners/list-oecd-member-countries.htm> (last visited Apr. 21, 2018).

150. Council for Trade-Related Aspects of Intellectual Property Rights, *Report on the Implementation of Article 66.2 of the TRIPS Agreement: Australia*, WTO Doc. IP/C/W/631/Add.1/Rev.1 (Oct. 5, 2017) [hereinafter Australia Report]; *Canada*, WTO Doc. IP/C/W/631/Add.3 (Oct. 2, 2017) [hereinafter Canada Report]; Japan, WTO Doc. IP/C/W/631 (Sept. 14, 2017) [hereinafter Japan Report]; United States, WTO Doc. IP/C/W/631/Add.2 (Sept. 28, 2017) [hereinafter U.S. Report].

151. See Reports cited, *supra* note 150. Each Report references the TRIPS Council document outlining the goals and requirements for Developed Country Members to implement Art. 66.2. See Implementation of Article 66.2, *supra* note 127.

152. Canada Report, *supra* note 150, para. 3; U.S. Report, *supra* note 150, para. 2 (“No report can represent every activity that directly or indirectly incentivizes enterprises and institutions for the purpose of promoting and encouraging technology transfer, but this report attempts to describe the most significant activities and programs and to convey the breadth and depth of U.S. efforts.”).

153. Australia Report, *supra* note 150, para. 2.

154. See Japan Report, *supra* note, 150, para. 3 (“[T]he Government of Japan would like to report on the following activities.”). Future research comparing a country's Article 66.2 report over a span of years may be fruitful.

155. See Australia Report, *supra* note 150, para. 8; Canada Report, *supra* note 150, para. 7.

156. All data was collected and coded by this paper's author. This paper does not represent complete accuracy and is subject to a margin of error. A breakdown of the data can be found in Appendix B.

1. Program Recipients

One of the main criticisms levied by least-developed country Members is that developed country Members do not specifically target them in their reported Article 66.2 programs.¹⁵⁷ This criticism is justified. While Article 66.2 plainly mandates developed country Members to support technology transfer to “least-developed country Members,”¹⁵⁸ Australia and Canada explicitly mention in their reports that they target *both* developing and least-developed countries to effectuate Article 66.2.¹⁵⁹ In fact, none of the 2017 implementation reports submitted by Australia, Canada, Japan, or the U.S. directed Article 66.2 programs exclusively toward least-developed countries. Like the reports analyzed in Moon’s 2011 study, the Australia, Canada, Japan, and U.S. reports often described programs that provided incentives for technology transfer to both “developing” and “least-developed” countries together. In addition, like Moon’s research, many of the 2017 programs analyzed were directed toward regions, without specifically targeting a country or a few least-developed countries. In light of this data, it is not surprising that on December 11, 2017, the Ministers of least-developed countries submitted the following Declaration:

We request that Members in the TRIPS Council deliberate and come to a decision in favour of [least-developed countries] that pursuant to TRIPS 66.2, developed country Members shall *only specify incentives provided to least-developed countries* for technology transfer. We further request that the TRIPS Council deliberate on the meaning of “incentives to enterprises and institutions” found in Article 66.2 and possible ways to providing incentives by developed country Members to their enterprises and institutions [in] order to meaningfully implement the letter and spirit of that provision.¹⁶⁰

157. See LDC Ministerial Declaration, *supra* note 108, at 3.4.

158. TRIPS Agreement, *supra* note 21, art. 66.2.

159. Australia Report, *supra* note 150, para. 2 (“The report focuses on incentives that are either targeted specifically at LDCs or at a group of countries which includes an LDC. Australia has recognized LDC as those countries which have been designated as such by the United Nations, noting all of which may not be WTO Members. In some cases. Australia has reported on programs that include developing and least developed countries.”); Canada Report, *supra* note 150, para. 3 (describing that its report provides an overview of incentives provided to Canadian enterprises and institutions, “which are either targeted specifically at LDCs or to groups that at a minimum include an LDC).

160. LDC Ministerial Declaration, *supra* note 108, para. 3.4 (emphasis added).

Australia	Canada	Japan	United States
68%	35%	64%	66%

Figure 4: Percentage of Programs Directed Specifically Toward Least-Developed Countries in 2017

Looking specifically at Canada's report illustrates the larger issue articulated by least-developed countries in their 2017 Declaration. One of Canada's programs entitled "Clean Technology Fund" provided \$200 million to the World Bank¹⁶¹ to support investment in the use of clean, low-carbon technologies.¹⁶² Canada indicated that its "Targeted LDC Members" were in "multiple Countries in Asia, Africa, and the Americas." Next, Canada's program "Food Security Innovation and Mobilization" provided \$17 million to a partner NGO to transfer agricultural production technologies to help farmers increase their yields and resilience to climate change.¹⁶³ According to the report, this program targeted "multiple countries, including Burkina Faso." Canada indicated that of the \$17 million invested in this program, approximately \$7.9 million, or 47%, was devoted to Burkina Faso, a least-developed country Member of the WTO.¹⁶⁴ Thus, while both of these programs have important benefits for least-developed countries, they miss the command of Article 66.2 to *specifically* target least-developed countries.

Other programs in Canada's report satisfied the Article 66.2 obligation to target only least-developed country Members. First, a program entitled "Agricultural Transformation Through Stronger Vocational Education" granted \$18.3 million to Dalhousie University to provide "high-quality training [to instructors and staff] that meets the needs of Ethiopia's commercially-oriented agriculture sector."¹⁶⁵ In addition, Canada's "Solar Technology for the West African Economic and Monetary Union" program provided \$2.1 million to a Montreal-based University to transfer "skills, knowledge, and expertise" to Burkina Faso, Mali, and Senegal.¹⁶⁶ These two programs represent the 35% of initiatives that targeted only least-

161. The World Bank is a multilateral organization. See *Who We Are*, THE WORLD BANK, <http://www.worldbank.org/en/who-we-are> (last visited Apr. 24, 2018). Providing incentives to the World Bank by itself would not satisfy the Article 66.2 mandate. See *infra* Section II.C.2 for a discussion of incentivizing governments and multilateral organizations to transfer technology to least-developed countries.

162. See Canada Report, *supra* note 150, at 14-15 (Example #6).

163. See *id.* at 10-11 (Example #3).

164. See *id.* at 10-11 (Example #3).

165. See *id.* at 11-12 (Example #4).

166. See *id.* at 20-21 (Example #11).

developed countries. Again, while least-developed country Members benefited from technology transfer as a result of broader policies covering *all* developing countries or regions, a key aspect of Article 66.2 is to single out least-developed countries for targeted action.¹⁶⁷ This preferential treatment is undoubtedly a critical element of the “bargained-for” exchange reached at the Uruguay Round. Consequently, when developed countries fail to target least-developed countries *exclusively*, they do not meet their end of the bargain within the TRIPS Agreement.¹⁶⁸

2. Incentivizing Enterprises and Institutions

The TRIPS Agreement obligates developed country Members to “provide incentives to enterprises and institutions in their territories” to fulfill the provision’s technology transfer command.¹⁶⁹ According to the Oxford Dictionary, the word “incentive” means “incitement to action, to do, provocation.”¹⁷⁰ The term “enterprises and institutions” encompasses not only private-sector entities, but also not-for-profit and public-sector entities (e.g., research institutions).¹⁷¹ While education and basic knowledge transferred through “institutions” helps create an environment for technological development to take root,¹⁷² scholars agree that technology transfer primarily flows through private markets.¹⁷³ When private enterprises engage with one another, participants may choose among trade in goods that embody technology, FDI, stipulated licensing agreements, or professional service agreements. In doing so, firms in least-developed countries can most effectively absorb, adopt, and use the transferred technologies.¹⁷⁴

Technology transfer between enterprises requires purposeful investments by both parties.¹⁷⁵ Understandably, without strong incentives, it is unlikely that private enterprises will voluntarily engage in technology transfer

167. See Moon, *supra* note 10, at 5 (discussing how least-developed countries would be less likely to receive technology transfer through regular market channels if they competed directly with middle-income countries).

168. See *supra* Section I.

169. TRIPS Agreement, *supra* note 21, art. 66.2.

170. CORREA, *supra* note 2, at 23.

171. See Moon, *supra* note 6, at 2.

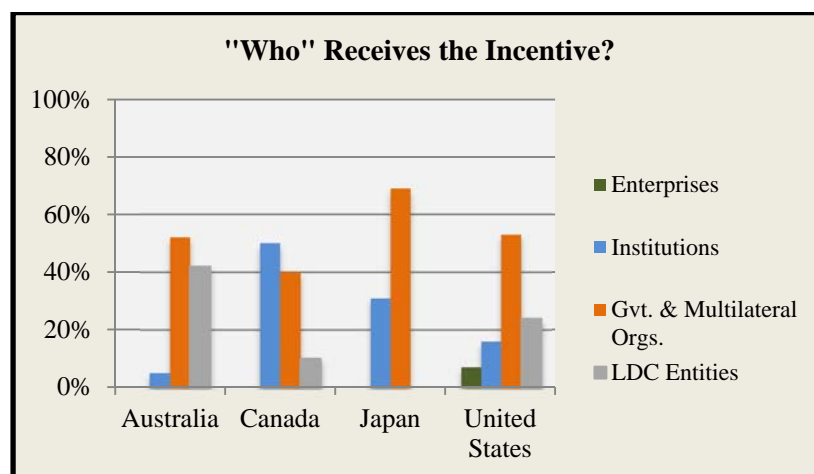
172. Chon, *supra* note 7, at 819 (“A well-informed, educated and skilled citizenry is indispensable to the development process.”).

173. See, e.g. Maskus & Okediji, *supra* note 8, at 6. See also CORREA, *supra* note 2 (commenting that it must be private markets that facilitate technology transfer, and that the government role is to provide incentives).

174. See generally CORREA, *supra* note 2.

175. See Maskus & Okediji, *supra* note 8, at 6.

arrangements with firms in least-developed countries.¹⁷⁶ International firms tend to not file patents in the poorest countries, and technology owners display little intention of deploying their technology in least-developed countries.¹⁷⁷ The result is a cyclical process whereby least-developed countries endure limited opportunities to adapt or absorb technologies from firms in developed countries. Understanding this reality, the framers of TRIPS Agreement Article 66.2 specifically commanded developed countries to incentivize domestic enterprises and institutions to partake in the international flow of technology to resource-poor countries.



	Australia	Canada	Japan	United States
Enterprises	0%	0%	0%	7%
Institutions	5%	50%	31%	16%
Gvt. & Multilateral Orgs.	52%	40%	69%	53%
LDC Entities	42%	10%	0%	24%

Figure 5: Percentage of Programs Incentivizing Enterprises and Institutions

176. CORREA, *supra* note 2, at 11 ("The low technical capacity of local enterprises constrain their ability to license-in technology, while the low GDP per capital in LDCs is not likely to stimulate potential transferors to engage in such arrangements."); Maskus & Reichman, *supra* note, at 289 (noting that economies with low incomes and limited technological capacity do not present attractive markets for private enterprises in developed countries, especially when firms may choose to invest in more developed countries around the world).

177. See Maskus & Okediji, *supra* note 8, at 7.

Enterprises

Data collected from the Australia, Canada, Japan, and U.S. reports showed a shockingly small number of incentives provided by these developed countries to enterprises “in their territories.” The U.S. was the only country to incentivize domestic firms, and its report indicated only ten of the 134 programs that provided incentives to U.S.-based enterprises.¹⁷⁸

An example of a U.S. program incentivizing a domestic firm was the “Madagascar Solar and Battery Storage Minigrid Project.”¹⁷⁹ In this program, the U.S. Trade and Development Agency (USTDA) provided financing for a joint venture project between Fluidic Inc., an Arizona-based energy storage company, and Henri Fraise Fils & Cie, a firm in Madagascar. The USTDA funding supported the deployment of solar power battery storage for 2,000 people in Madagascar.¹⁸⁰ In another program, the U.S. provided funding to Boston-based WrightGrid USA to establish a network of charging stations at universities throughout the Democratic Republic of the Congo (DRC).¹⁸¹ The goal of the project was to incentivize WrightGrid to invest in the DRC and to support the larger Congolese market, where cell phone users suffer from chronic citywide blackouts.¹⁸² Both of these U.S. programs fall squarely within the ambit of the Article 66.2 mandate. Both Fluidic Inc. and WrightGrid are “enterprises” in U.S. “territory,” and both received incentives (in the form of financial support) to transfer technology to a least-developed country Member.

Institutions

Funding for domestic “institutions” was a common incentive provided by Canada and Japan. For example, Global Affairs Canada—an agency of the Canadian government—provided \$10 million to Digital Opportunity

178. Categorization between an enterprise and institution was done through basic internet searches for the organization’s corporation status; not-for-profit organizations and universities were considered “institutions” while private companies were categorized as “enterprises.”

179. U.S. Report, *supra* note 150, para. 136; *see also* Home, FLUIDICENERGY, <http://fluidicenergy.com> (last visited Apr. 24, 2018); *Power Profile – Henri Fraise Fils & Cie*, CAT.COM, https://www.cat.com/en_US/articles/customer-stories/electric-power-generation/power-profile-henri-fraise-fils-cie.html (last visited Apr. 24, 2018).

180. U.S. Report, *supra* note 150, para. 136 (discussing how the funding is currently being used to support a feasibility study to launch the joint-venture pilot project).

181. *Id.* para. 137; *see* WrightGrid, CRUNCHBASE, <https://www.crunchbase.com/organization/wrightgrid> (last visited Apr. 24, 2018) (“WrightGrid specializes in designing and manufacturing solar-powered charging stations.”).

182. U.S. Report, *supra* note 150, para. 137.

Trust (DOT), a Canadian-based not-for-profit organization, for a program in Ethiopia called “Entrepreneurship and Business Growth for Youth” in Ethiopia.¹⁸³ The funding supported DOT in providing vocational training and business support services to micro and small growing enterprises in Ethiopia.¹⁸⁴ Similarly, Japan provided funding to the Association for Overseas Technical Cooperation and Sustainable Partnerships (AOTS) to deliver technical training courses for engineers and professionals in Bangladesh, Cambodia, Ethiopia, Lao PDR, and Myanmar.¹⁸⁵ According to the Japan report, AOTS provided training to local firms in these least-developed countries to improve their management capacities, and to train them in communication technology and human organizational problem solving.¹⁸⁶ Finally, like Canada and Japan, the U.S. supported not-for-profit and university “institutions” for 16% of its Article 66.2 programs. An example of U.S. compliance with Article 66.2 includes the “All Children Reading Cambodia” program.¹⁸⁷ Through this program, the U.S. provided funding to Research Triangle Associates (RTI), a North Carolina-based not-for-profit, to develop an early grade program for Cambodian children.¹⁸⁸ The funding supports RTI’s work with the Cambodian Ministry of Education, Youth and Sports to support this transfer of knowledge.¹⁸⁹ Like the Canadian and Japanese programs, this U.S. program incentivized a domestic institution to facilitate the flow of technology to a least-developed country Member.

Government and Multilateral Organizations

Article 66.2 enumerates “enterprises” and “institutions” as the entities that may transfer technology to least-developed country Members. Private enterprises and institutions—and not developed country governments—

183. Canada Report, *supra* note 150, at 7–8 (Example #1); see *Digital Opportunity Trust*, DOT.ORG, <https://www.dotrust.org> (last visited Apr. 24, 2018); *Global Affairs Canada*, GOVERNMENT OF CANADA, <http://www.international.gc.ca/international/index.aspx?lang=eng> (last visited Apr. 24, 2018).

184. See Canada Report, *supra* note 150, at 8 (Example #1).

185. Japan Report, *supra* note 150, para. 7-8. AOTS is a nonprofit organization with the mission to develop human resources in developing countries, to promote technical cooperation through training, and to dispatch experts and other programs to resource-poor nations. See AOTS, FACEBOOK, https://www.facebook.com/pg/AOTSJAPAN.E/about/?ref=page_internal (last visited Apr. 24, 2018).

186. Japan Report, *supra* note 150, para. 9.

187. U.S. Report, *supra* note 150, para. 26.

188. *Id.*; see *Contact Us*, RTI INTERNATIONAL, <https://www.rti.org> (last visited Apr. 24, 2018).

189. U.S. Report, *supra* note 150, para. 26.

own the vast majority of the world's technologies.¹⁹⁰ The framers of the TRIPS Agreement understood this, and therefore explicitly sought to have third-party entities transfer technology, rather than governments or multilateral organizations. A literal reading of Article 66.2 thus indicates that purely governmental projects do not comply with the treaty's mandate.¹⁹¹ Still, more than half of the Australia, Japan, and the U.S. programs were government-led initiatives. Only Canada provided incentives to non-governmental entities more than half the time, and Canada still had 40% of its programs directly implemented through government agencies. Within the U.S. report, an example of a government-led project included the USAID Safaa Paani project in Nepal.¹⁹² This project involved the USAID working directly with the Ministry of Water Supply and Sewage in Nepal to construct 200 gravity flow water systems and 10 public toilets.¹⁹³ The project is ongoing, and aims to work with 200 communities from 14 Nepalese villages.¹⁹⁴ All expertise and monetary support for this program has come directly from the U.S. government, and not from a third-party enterprise or institution.

Two examples of Australian programs incentivizing a government or multilateral organization are particularly illustrative of this larger problem with Article 66.2 implementation. First, the "Training to Bangladesh Ministry of Agriculture in Sanitary and Phytosanitary topics" program involved the Australian government transferring technology directly to the Bangladesh government.¹⁹⁵ The program provides increased funding for the Australian Department of Agriculture and Water Resources (DAWR) to train eight officers of the Bangladesh Ministry of Agriculture.¹⁹⁶ Australia writes in its report that DAWR used the increased funding to provide these Bangladesh officials training and training materials, to help them assess and manage biosecurity risks associated with agricultural exports or imports.¹⁹⁷ Next, the Australian program entitled "ASEAN Regional Diagnostic Network Project" involved the Australian government providing funding to the Economic Cooperation Work Programme (ECWP).¹⁹⁸ The ECWP is funded directly by the ASEAN-Australia-New

190. CORREA, *supra* note 2, at 23 (citing the European Communities).

191. *Id.*

192. U.S. Report, *supra* note 150, para. 109.

193. *Id.*

194. *Safaa Paani (Wash Recovery) Program*, USAID.org (Dec. 13, 2017), <https://www.usaid.gov/nepal/fact-sheets/safaa-paani-wash-recovery-program>.

195. *See* Australia Report, *supra* note 150, at 14–15.

196. *Id.*

197. *Id.*

198. *Id.* at 17–18.

Zealand Free Trade Agreement.¹⁹⁹ This program charged the ECWP with providing workshops and training on diagnostics of plant pests and diseases to ASEAN members, including Cambodia, Lao PDR, and Myanmar.²⁰⁰ While all of these programs might have specifically targeted least-developed countries, they involved a developed country Member short-circuiting the Article 66.2 mandate. Rather than providing incentives to third-party enterprises or institutions, these programs were “purely governmental projects.”²⁰¹ Finally, the Japan report is especially troubling with respect to its reliance on government-led transfers of technology. Nearly 70% of the Japanese programs were facilitated directly via the Japanese national government.

Least-Developed Country Entities

Importantly, the TRIPS Agreement specifies that developed countries may provide incentives to enterprises and institutions “in their territories.” Data collected from the Australia, Canada, Japan, and U.S. report showed a surprisingly large number of programs that provided incentives to entities *outside* the developed country’s territory. Specifically, 24% of the U.S. programs and 42% of the Australia programs provided incentives to entities outside “their territories. For example, the USAID “Civil Society Mutual Accountability Project” funds Kathmandu Living Labs (KLL), a civic tech company headquartered in Kathmandu, Nepal.²⁰² The U.S. report describes KLL as “the implementing partner.”²⁰³ Similarly, Australia provided incentives to entities in least-developed countries in 42% of its reported programs.

199. See *Overview of the AANZFTA Economic Cooperation Support Program (AECSP)*, AANZFTA.ORG, <http://aanzfta.asean.org/aecsp-overview/> (last visited Apr. 24, 2018).

200. Australia Report, *supra* note 150, at 17–18.

201. See CORREA, *supra* note 2 (discussing how “purely governmental programs” do not satisfy the Article 66.2 command).

202. U.S. Report, *supra* note 150, para. 74; see *Civil Society: Mutual Accountability Project*, USAID (Jan. 10, 2018), <https://www.usaid.gov/nepal/fact-sheets/civil-society-mutual-accountability-project>; *Contact Us*, <http://www.kathmandulivinglabs.org/contact> (last visited Apr. 24, 2018).

203. U.S. Report, *supra* note 150, para. 74.

III. ENSURING FULL IMPLEMENTATION OF ARTICLE 66.2

Theories supporting strict enforcement of intellectual property rights are grounded in “utilitarian” goals.²⁰⁴ Because technology is non-rivalrous and non-excludable, the potential for free-riding eliminates the incentive to produce information.²⁰⁵ Thus, state-granted property rights in both “hard” and “soft” technologies (e.g., knowledge and machinery) create the excludability necessary to incentivize further innovation and creative production.²⁰⁶ The TRIPS Agreement is the WTO mechanism for organizing property rights for both “hard” and “soft” technologies.

Like the larger “bargained-for exchange” that formed the WTO, the TRIPS Agreement organizes these intellectual property rights in a manner that simultaneously meets the needs and interests of both developed and least-developed countries.²⁰⁷ For example, while the Agreement outlines the “exclusive rights” vested in copyright and patent owners, it simultaneously moderates those rights through “certain special cases”²⁰⁸ and compulsory licensing.²⁰⁹ More broadly, the TRIPS Agreement established both minimum requirements protecting intellectual property rights in Part II of the Agreement, and a framework for transitional arrangements in Part VI of the Agreement.²¹⁰ Located in Part VI, Article 66.2 vests in least-developed country Members with the right to possess transferred technology.²¹¹ Despite Article 66.2 not specifying *what* kind of technology must be transferred, the provision nevertheless affirms the right that least-developed country Members hold to possess *some* transferred technology “in order [to] create a sound and viable technological base.”²¹²

204. See generally WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* (2003).

205. See Sunder, *supra* note 48, at 283.

206. *Id.*

207. See *supra* Section I.

208. See TRIPS Agreement, *supra* note 21, art. 13 (“Members shall confine limitations or exceptions to exclusive rights to certain special cases.”).

209. See *id.* art. 31.

210. See *infra* discussion on the bargained-for exchange in Section I.

211. TRIPS Agreement, *supra* note 21, art. 66.2 is similar to TRIPS Agreement art. 31, which vests Member countries with the right to possess license to patentable subject matter under certain circumstances.

212. See TRIPS Agreement, *supra* note 21, art. 66.2. Traditional property law recognizes a party’s right, under certain circumstances, to Exclude, Possess, Use, and Transfer.

A. Legal Solution: Enforcing Article 66.2 via Dispute Settlement

Parts III, IV, and V of the TRIPS Agreement lay out the enforcement obligations and dispute resolution procedures for all WTO Members.²¹³ As outlined in these Parts of the TRIPS Agreement, the primary mechanism for enforcing rights and obligations under the Agreement is through the WTO Dispute Settlement Understanding (DSU) rules.²¹⁴ During the Uruguay Round, it was the developed countries' desire to create an effective mechanism to combat piracy and counterfeiting that drove the adoption of the DSU rules into the TRIPS Agreement.²¹⁵ In doing so, the TRIPS Agreement gave more bite to the economic obligations under the Paris and Berne Conventions.²¹⁶ The DSU thus applies to the TRIPS Agreement in context of the Uruguay Round package, and was part of the "bargained-for" exchange that all Member countries accepted as a condition of WTO membership.²¹⁷

Least-developed countries may be entitled to bring claims alleging a developed country's noncompliance with Article 66.2. The DSU rules establish a WTO Dispute Settlement Body (DSB) comprised of representatives from all WTO Members.²¹⁸ The DSB administers WTO dispute settlement proceedings. To do so, it may establish panels to hear disputes and an Appellate Body to review panel decisions.²¹⁹ Article 3.2 of the DSU rules requires that panels and the Appellate Body, when administering a dispute proceeding, "preserve the rights and obligations of

213. See CHOW & LEE, *supra* note 72, at 696; see generally TRIPS Agreement, *supra* note 21, Part III ("Enforcement of Intellectual Property Rights"), Part IV ("Acquisition and Maintenance of Intellectual Property Rights and Related *Inter-Partes* Procedures"), Part V ("Dispute Prevention and Settlement").

214. See TRIPS Agreement, *supra* note 21, art. 64. The Dispute Settlement Understanding rules can be found in Annex 2 of the WTO Agreement, *Understanding on Rules and Procedures Governing the Settlement of Disputes*, https://www.wto.org/english/tratop_e/dispu_e/dsu_e.htm#top [hereinafter DSU Rules].

215. See DSU Rules, *supra* note 214; see also *infra* Section I.A.

216. Harris, *supra* note 74, at 378.

217. Daniel T. Shedd, et. al., *Dispute Settlement in the World Trade Organization (WTO): An Overview*, Congressional Research Service (Nov. 26, 2012), <https://fas.org/sgp/crs/misc/RS20088.pdf>.

218. *Id.* at 2; see DSU Rules, *supra* note 214, art. 2.1 ("The Dispute Settlement Body is hereby established to administer these rules and procedures and, except as otherwise provided in a covered agreement, the consultation of dispute settlement provisions of the covered agreements. Accordingly, the DSB shall have the authority to . . . maintain surveillance of implementation of rulings and recommendations, and authorize suspensions of concessions and other obligations under the covered agreements.").

219. DSU Rules, *supra* note 214, art. 17.1 ("A standing Appellate Body shall be established by the DSB. The Appellate Body shall hear appeals from panel cases.").

Members under the covered agreements.”²²⁰ The text of Article 66.2—by using the words “shall provide”²²¹—imposes specific “obligations” on developed countries to incentivize enterprises and institutions. In doing so, Article 66.2 thereby grants “rights” to least-developed countries to receive this technology transfer.²²²

In addition, under the DSU rules, a panel or Appellate Body must interpret the TRIPS Agreement “in accordance with customary rules of interpretation of public international law.”²²³ An early Appellate Body report confirmed that the “rules of interpretation” mentioned in Article 3.2 fall under Article 31 of the Vienna Convention on the Law of Treaties.²²⁴ Article 31 of the Vienna Convention provides that a treaty shall be interpreted “with the ordinary meaning to be given to the terms of the treaty in their context and in light of its object and purpose.”²²⁵ According to the Vienna Convention, the “context” of a treaty’s terms includes the treaty’s text and its *preamble*.²²⁶ Finally, should the DSB need further help interpreting a provision’s meaning, it may look to the “preparatory work of the treaty.”²²⁷ Thus, when interpreting Article 66.2 of the TRIPS Agreement, the DSB will look to the Agreement’s *preamble*, Articles 7 and

220. *Id.* art. 3.2.

221. Other provisions of the TRIPS Agreement use “may provide”. Moon, *supra* note 6, at 2 (“TRIPS Article 66.2 establishes a mandatory, binding, positive legal obligation on ‘developed country’ Members of the WTO”).

222. See TRIPS Agreement, *supra* note 21, art. 66.2 (“Developed country Members *shall provide* incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to *least-developed country Members . . .*”) (emphasis provided).

223. DSU Rules, *supra* note 214, art. 3.2.

224. Shedd et. al., *supra* note 217, at 4 (citing Appellate Body Report, *United States – Standards for Reformulated and Conventional Gasoline*, at 17, WT/DS2/AB/R (Apr. 29, 1996); see also CORREA, *supra* note 2, at 23 (noting that the WTO panels and Appellate Body have consistently applied Articles 31 and 32 of the Vienna Convention). Australia, Canada, and Japan are parties to the treaty. *Chapter XXIII: Law of Treaties*, United Nations Treaty Collection (Apr. 25, 2018), https://treaties.un.org/Pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXIII-1&chapter=23&Temp=mtdsg3&clang=_en. The U.S., while not a party, has signed the Convention and recognizes its authoritative status. Shedd et. al., *supra* note 217, at n. 14.

225. Vienna Convention on the Law of Treaties, art. 31.1 (1969), <https://treaties.un.org/doc/publication/unts/volume%201155/volume-1155-i-18232-english.pdf>; see UNCTAD-ICTSD, *supra* note 34, at 2.

226. Vienna Convention, *supra* note 225, art. 31.1. Even more, the Public Health Declaration passed at the Doha Round maintained that “each provision of the TRIPS Agreement shall be read in light of the object and purpose of the Agreement as expressed . . . in its object and principles.” Declaration on the TRIPS Agreement and Public Health (Nov. 14, 2001), https://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_trips_e.htm.

227. Vienna Convention, *supra* note 225, art. 32.

8 of the Agreement,²²⁸ and relevant negotiations during the Uruguay Round.²²⁹

The TRIPS *preamble* confirms the creation of “obligations” and “rights” in Article 66.2.²³⁰ In particular, the *preamble* explicitly mentions that the TRIPS Agreement was formed to create new rules and disciplines concerning “transitional arrangements aiming at the fullest participation in the results of the negotiations.”²³¹ In addition, the *preamble* articulates the need to recognize “the special needs of the least-developed country Members . . . to create a sound and viable technological base.”²³² The framers of the TRIPS Agreement placed Article 66.2 in Part VI of the Agreement, entitled “Transitional Arrangements.”²³³ As indicated in its title, Article 66—as compared to Article 65—concerns least-developed countries *exclusively*.²³⁴ Finally, Article 66.2 specifies that the purpose behind the developed countries’ obligation to incentivize enterprises and institutions is to enable least-developed country Members “to create a sound and viable technological base.” This language mirrors that used in the *preamble* and is further proof that the *preamble* affirms the positive obligations imposed on developed countries in Article 66.2.

Next, the “object and purpose” as articulated in Articles 7 and 8 of the TRIPS Agreement further support the “obligations” and “rights” created by Article 66.2. Article 7 specifically refers to the “balance of rights and obligations” as an objective of the Agreement.²³⁵ In addition, Article 7 balances the “mutual advantage of producers and users of technological knowledge” to create “social and economic welfare.”²³⁶ The obligations imposed on developed countries under Article 66.2 ensure that developed countries—the producers of technological knowledge—contribute to the social and economic welfare in least-developed countries. Article 8 similarly affirms the Article 66.2 mandate, discussing the need to promote “the international transfer of technology.”²³⁷ Ensuring the international transfer of technology is the purpose of Article 66.2. Therefore, the DSB

228. TRIPS Agreement, *supra* note 21, art. 7 (“Objectives”); *id.* art. 8 (“Principles”); *see supra* Section I.B.1 for a discussion of these Articles.

229. *See, e.g.,* GERVAIS, *supra* note 33, at 37.

230. *See* discussion *supra* Section I.B.1.

231. TRIPS Agreement, *supra* note 21, pmbl, subsection (e).

232. *See id.* pmbl.

233. *See id.* Part VI.

234. *See id.* art. 66; *see also* discussion *supra* Section II.C.1 on Program Recipients for further demonstration of the specification between developing and least-developed countries.

235. TRIPS Agreement, *supra* note 21, art. 7.

236. *Id.*

237. *Id.* art. 8.

may rely on Articles 7 and 8 of the TRIPS Agreement to support a least-developed country's claim against a developed country that fails to fulfill the textual commands of Article 66.2.²³⁸ Altogether, the TRIPS Agreement *preamble*, Articles 7 and 8, and the Uruguay Round negotiations²³⁹ demonstrate the clear intention behind Article 66.2 and its position within the "bargained-for" exchange of the TRIPS Agreement. Failure to comply with this provision is thus a breach of the Agreement.

One may defend the inability of developed countries to meet the command of Article 66.2, and argue that the political and economic instability in least-developed countries makes the obligation implausible. Even more, one may argue that the deferred implementation provisions of Article 65 and Article 66.1 undermine the specific obligations imposed on developed countries in Article 66.2. The preponderance of econometric studies suggests that market-mediated flows of technology respond positively to the strengthening of patent laws across countries.²⁴⁰ Consequently, if least-developed countries are given leeway to integrate intellectual property enforcement laws and regulations, then no matter the incentive, private markets simply will not invest in those impoverished countries. And, even if strict intellectual property regimes in least-developed countries are not particularly important to attract technology transfer, these countries have limited technological capacities and economies that provide little to no opportunity for an enterprise to profit. As such, least-developed countries are such unattractive markets to begin with that even the most aggressive incentives provided by a developed country Member would not successfully encourage a firm to invest in those countries. Consequently, Article 66.2 sets up developed countries to fail.²⁴¹

These arguments, while reasonable, are unpersuasive. It is true that the markets and economies in least-developed countries are frighteningly poor.

238. *But see* Harris, *supra* note 74, at 382 (discussing that while reliance on Articles 7 and 8 might be a "key basis for a pro-development interpretation of the TRIPS Agreement," relying on these provisions to bring a successful claim before the DSB because the WTO panel has yet to officially interpret these provisions). Perhaps this paper provides encouragement to least-developed countries to bring a claim before the DSB so that it may have the opportunity to interpret the TRIPS Agreement "Objectives" and "Principles" in light of the command of Article 66.2.

239. *See supra* Section I.A for a discussion of the Uruguay Round negotiations for proof that Article 66.2 is part of the larger bargained-for exchange between developed and least-developed countries.

240. Maskus & Reichman, *supra* note, at 289.

241. Maskus & Reichman, *supra* note, at 289 ("Economies with low incomes and limited technological capacity present neither attractive markets nor a competitive imitation threat. Because their intellectual property regimes are not particularly important in attracting [international technology transfer], it seems unlikely that the standards implemented in compliance with TRIPS will encourage additional technology transfer to the poorest countries.").

It is also true that private enterprises and institutions in developed countries might find it risky—both financially and physically—to spend resources in least-developed countries.²⁴² However, this is precisely why the framers of the TRIPS Agreement included Article 66.2. If not for Article 66.2, it is debatable whether least-developed countries would have even agreed to sign onto the TRIPS Agreement to begin with. Without the positive obligations placed on developed countries in Article 66.2, firms “in their territories” would choose to invest in countries with less risk and more economic opportunity. Therefore, this argument only further demonstrates the purposeful textual command of Article 66.2.

CONCLUSION

In most instances, resource-poor countries find it cheaper and faster to acquire foreign technologies than to develop them with domestic resources.²⁴³ As evidenced from the history of the U.S. and China’s technological development, weak intellectual property protections can hasten industrial transformation.²⁴⁴ While negotiating directly with an industrial giant like the U.S., least-developed countries agreed to sign the TRIPS Agreement—and, thus, protect the technology-based industries in developed countries—under the promise of receiving transferred technology in return.²⁴⁵ Despite not being the *demandeurs* of integrating intellectual property within GATT, the least-developed countries negotiated an agreement that, in its text, promises using “technical knowledge” to protect public health and nutrition, encourage social and economic welfare, and create viable technological economies in least-developed countries.²⁴⁶ In total, the “bargained-for” exchange promised the mutual advantage of a harmonized intellectual property trade scheme.

Today, least-developed countries comprise 21% of WTO Membership. Unfortunately, because least-developed countries do not receive what they bargained for, the TRIPS Agreement only further entrenches the growing

242. *Id.* at 288 (discussing the instability in poor countries, and that “[t]echnology developers are interested in reducing the costs and risks of making transfers, along with protecting their rights to profit from them”).

243. *Id.* at 287.

244. *Id.* at 290 (discussing how Japan and South Korea were models of countries of now-developed economies that underwent significant technological learning and industrial transformation with the benefit of weak intellectual property protections).

245. See Balaklaw, *supra* note 5, at 156 (noting that technology transfer was part of the bargain in which least-developed countries agreed to protect intellectual property rights).

246. See generally TRIPS Agreement, *supra* note 21.

economic divisions between developed and least-developed countries.²⁴⁷ Least-developed countries hold the largest and most rapidly growing youth population; about 60% of the population in least-developed countries is under the age of 25.²⁴⁸ As such, there is great opportunity to harness this young talent for future development and growth. This youthful population may be educated through increased funding of scholarships, cultivated to become entrepreneurs through training, and supported financially to develop and grow micro-enterprises in their home countries. With the full implementation of Article 66.2, the TRIPS Agreement may harness this latent talent and lay the foundation for solving the most world's most pressing issues.

247. See Hutchison, *supra* note 98, at 8.

248. UN-OHRLLS, *supra* note 5, at 19.